

# EXPLORATION TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

March 11, 2004

TO: Internal File

FROM: Peter H. Hess, Environmental Scientist III/Inspector, Team Lead

RE: Coal Exploration for Seam Thickness and Quality, Canyon Fuel Company, LLC,  
Dugout Canyon Mine, C/007/039, Task ID #1834

### **SUMMARY:**

Ark Land Company, which is a subsidiary of Arch Coal, Inc., submitted an application to permit three coal exploration holes to evaluate coals relative to School and Institutional Trust Lands Administration lease ML 48435-OBA, which is relative to Canyon Fuel Company's Dugout Canyon Mine. All surface lands are under private ownership, being held by the heirs of the Milton and Ardith Thayn Trust. Approximately 2,560 acres of reserves are associated with the SITLA lease.

### **EXPLORATION TECHNICAL ANALYSIS:**

## COAL EXPLORATION

Regulatory Reference: R645-200.

### **SCOPE AND RESPONSIBILITIES**

Regulatory Reference: 30 CFR 772.1; 30 CFR 772.10; 30 CFR 772.11; R645-100-400; R645-200-100; R645-200-200; R645-201-100.

### **Analysis:**

The coal reserves and surface access are located in Carbon County, Utah, approximately fifteen miles northeast of Wellington, Utah. The legal description of the area, as included on page 3 of the coal exploration application indicates the following State Lease ML 48435-OBA is

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located as follows: T.13 S., R.13E., SLB&M. The following sections are included within the lease:

Section 17: SW/4, SW/4,SE/4  
Section 19: NE/4SE/4, S/2SE/4  
Section 20: All  
Section 21: SW/4NW/4,SW/4  
Section 28: NW/4, N/2SW/4, SW/4SW/4  
Section 29; All  
Section 30: E/2,E/2W/2.

As previously noted, all surface area is privately owned. Thus, the review of this coal exploration application is the responsibility of the State of Utah, Department of Natural Resources, Division of Oil, Gas, and Mining (R645-201-100, 110).

The lands/coal reserves described above do not meet the requirements of 43 CFR 3480-3487, as the coal reserves are owned by the State of Utah.

It is the Divisions responsibility to coordinate activities in reviewing coal exploration projects with other agencies with the objective of reducing duplication of operator effort, and at the same time, maximizing the effect of its protection of the State from the environmental effects of coal exploration activities. As of 2/27/2004, the Division is currently reviewing the SITLA lease application, submitted by Canyon Fuel Company's Dugout Canyon Mine.

As part of the permitting process for three degasification wells for the Dugout Canyon Mine, (Task ID# 1642, approved September 19, 2003), the permittee included a copy of the notification letter sent to the heirs of the Milton and Ardith Thayn Trust. That letter describes the drilling activities that were being proposed by the applicant on the Thayn Trust lands, including the three degasification wells and three proposed exploration holes. **The applicant needs to issue a new letter to the Thayn Trust describing the 2004 and 2005 proposed exploration drilling activities.**

**Findings:**

The applicant has made submittal of this proposed coal exploration to the proper responsible reviewing agency, which is the Utah Division of Oil, Gas, and Mining.

**R645-201-130**, The applicant must inform the heirs of the Thayn Trust of the proposed exploration drilling activities for 2004 and 2005.

**REQUIREMENTS FOR NOTICE OF INTENTION TO CONDUCT MINOR COAL EXPLORATION**

Regulatory Reference: 30 CFR 772.10; 30 CFR 772.11; R645-100-412; R645-201-200.

### Analysis:

The permittee's application intends to permit three exploration holes, one of which (DUG0103) will be drilled during 2004. Holes DUG0105 and DUG0205 are being proposed for the 2005 drilling season. Page 5, paragraph two, of the application states "the only coal removed during exploration activities will be cores. Cores will be a nominal three inches in diameter. Assuming an average thickness of seven feet for the Rock Canyon coal seam and eight feet for the Gilson coal seam, an estimated 300 pounds of coal will be removed." The three hundred pounds of coal is the total amount of coal that will be removed during the drilling of all three of the proposed exploration holes. As 300 pounds is minimal compared to the 250 tons of coal specified as classifying a minor/ major coal exploration in the R645 coal rules, this coal exploration can be **classified as a minor coal exploration** application. The depths of the holes to be drilled vary from 1,700 feet to 3,150 feet (See page 6 of the application). The exploration is not being proposed on lands that have been designated as being unsuitable for surface coal mining operations.

The application contains the name, address, and telephone number of the applicant seeking to explore on page 2 of the submittal. The applicant is as follows:

Ark Land Company  
c/o Skyline Mines  
HC35 Box 380  
Helper, Utah 84526  
(work) 435-448-2634

This information meets the requirements of R645-201-221.

The applicant is the same as the operator of the proposed exploration plan. The applicant's representative is indicated on page 2 of the application and is listed as follows:

Mike Stevenson  
Ark Land Company  
c/o Skyline Mines  
HC 35 Box 380  
Helper, Utah 84526  
(work) 435-448-2634.

This information meets the minimum regulatory requirements of R645-301-222.

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**R645-201-223** requires that the application contain a narrative and a map describing the exploration area and indicating where the exploration will occur. Page 3 of the application contains this information by listing the township and range as well as the section information. References to Maps 1 and 2 are made. Map 1 gives the general location of the exploration activities that are located 15 miles NE of Wellington, Utah. Map 2 depicts the general surface topography and the access roads that will be used for the exploration.

The minimum regulatory requirements of R645-201-223 have been met.

**R645-201-224** requires that the application contain “a statement of the period of intended exploration”. This is provided on page 4 of the submittal. The permittee states that it is anticipated that the exploration will be initiated during the third week of July in both 2004 and 2005 (DUG0103 to be drilled in 2004, DUG0105 and DUG0205 to be drilled in 2005). Exploration activities will continue for approximately eight weeks as depicted by the bar graph on page 4.

This information is adequate to meet the minimum regulatory requirements of this section.

**R645-201-225** requires the following from a coal exploration application:

- 1) A description of the method of exploration to be used.
- 2) The amount of coal to be removed.
- 3) The practices that will be followed to protect the area from adverse impacts of the exploration activities.
- 4) (The methods to be used) to reclaim the area in accordance with the applicable requirements of R645-202.

Page 4, section R645-201-225 of the application indicates the following: “the drilling procedure for the exploration holes will be either to continuously core to total depth, rotary drilling and spot coring of selected zones, or a combination of both. If the rotary drilling and spot coring method is used, casing will be set in the hole to below the Price River Formation.”

Page 5, paragraph 2 of the application indicates that all three holes will penetrate both the Rock Canyon and Gilson seams. “The only coal removed during exploration activities will be cores. Cores will be a nominal three inches in diameter. Assuming an average thickness of 7 ft for the Rock Canyon Coal Seam and 8 ft for the Gilson Coal Seam, an estimated 300 pounds of coal will be removed.”

Practices which will be implemented to protect the area from adverse impacts include the following: “Excavation will include grubbing, removal and separate storage of the soil A horizon and, if needed, removal and separate storage of material below the soil A horizon to make a level

drill site. Two mud pits will be excavated in the material below the soil A horizon if there is sufficient soil depth. The only material disposed of at the drill sites will be cuttings and any drilling foam and/or mud which will be placed in the mud pits". "It is not anticipated that acid or toxic forming materials will be encountered during exploration because none have been encountered previously."

Page 5 of the application states that water will be pumped and/or hauled from the right fork of Dugout Creek and/or Pace Creek to the drill sites (Map 2). Page 7 of this minor coal exploration application states under section R645-202.230 that "no adverse impacts to the stream channel will occur during pumping activities. No water will be pumped from the North Fork of Dugout or Pace Canyon Creeks without an approved "Temporary Change of Water" from the Division of Water Rights. A copy of the approved Temporary Change will be forwarded to DOGM and will be in possession of the on-site geologist." CFC has two water rights in the Dugout Creek / Pace Canyon Creek area. The two rights are 91-409 and 91-519. The applicant transfers 2.5 acre-feet from each of these water rights (1.63 million gallons, total) to use for drilling activities.

The coal exploration plan submitted states the following relative to the reclamation of the three coal exploration holes; "The exploration holes will be plugged with a cement, cement/bentonite slurry, or bentonite chips to their full depth. The completion method includes pulling surface casing when possible; when (this is) not possible, cutting it flush with the ground, then pumping the cement/bentonite slurry through the drill pipe starting at the bottom of the hole. Plugging will then be done in stages by tripping-out of the hole 3-4 joints (60-80 ft) and pumping again. This process will be repeated to the surface. If bentonite chips are used, the chips will be dumped down the annulus of the hole in such a manner to prevent bridging in the hole and drilling water added to the hole as specified by the manufacturer." "The method of revegetation is intended to encourage prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover".

### **Findings:**

Prior to receiving a recommendation for approval of this minor coal exploration application, the permittee must provide the Division a copy of the approved Temporary Change of Water from the Utah DNR/ Division of Water Rights.

**R645-201-225,** The practices that will be followed to protect the area from adverse impacts of the exploration activities. This requirement pertains to how the applicant will protect the area where water will be pumped from the Dugout Creek / Pace Canyon Creek area by preventing additional contributions of suspended solids to those waters.

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## COMPLIANCE DUTIES

Regulatory Reference: 30 CFR 772.13; R645-202.

## OPERATIONAL STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-100.

### Analysis:

#### Roads

R645-202-232 Roads / Associated Performance Standards, “All roads.....used for coal exploration will comply with the applicable provisions of:

- 1) R645-301-358, “the operator will, to the extent possible...minimize disturbances and adverse impacts on fish, wildlife, and related environmental values and will achieve enhancement of such resources where practicable”. The three exploration holes being proposed by Ark Land Company are due east of the degasification well G-3, which was permitted by the Division and approved for implementation in September of 2003. The distances from the permitted degasification well G-3 to the proposed exploration holes range from 1.25 to 1.63 miles. It is not clear what roads will be specifically used to access the exploration hole locations. Also, the specific improvements which will be made to the specified roads must be designated. This information must be provided.
- 2) R645-301-512.250, the minor coal exploration application contains the following information regarding access to the three proposed sites: 1) Page 3 of the application indicates that existing ranch or logging roads will be used to provide access to the proposed sites. Pages 3 and 4 indicate that gravel will be placed on the existing roads to improve their condition for the exploration vehicles as needed. Grading will also be performed to smooth the surfaces and eliminate roadway ruts. Page 5 states that none of the access routes will be reclaimed upon completion of the exploration activities. This coincides with the requirement on page 5 of the surface landowner agreement that exists between the heirs of the Milton and Ardith Thayn Trust and Canyon Fuel Company. That part of the agreement states that all improvements made by the lessee, (Canyon Fuel Company/Ark Land Company) shall remain upon completion of all mining related activities. Thus all road improvements will remain as part of the ranch and logging roads. Page 7 of the minor coal exploration application, section R645-202-232 indicates that no (new) road construction is being planned for this

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project. All exploration sites will be accessed via existing roads. The requirements for P.E. certification are not necessary, as no new roads are to be constructed, and the roads that are in existence have provided access for heavy drilling vehicles in the past.

- 3) R645-301-526.200, Utility Installation and Support Facilities. The requirements of this regulation as they relate to roads associated with minor coal exploration activities are that the application must include a utility installation description which states that all coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction or disruption of services provided by oil, gas, water wells, oil, gas or coal slurry pipelines, railroads, electric and telephone lines, water and sewage lines which pass over or under or through the permit area unless otherwise approved by the owner of those facilities and the Division. As far as this minor coal exploration submittal is concerned, it is believed that there are no facilities as described within the exploration area. However, if that is the case, the minor coal exploration application must state that is the case.
- 4) R645-301-527.100, The plan must classify each road. This requirement is interpreted to mean that any new roads that are to be constructed as access to the minor coal exploration sites must be classified as primary or ancillary. As previously noted, there is to be no new roadway construction which would require vegetation grubbing, topsoil removal and storage, establishment of grades, and drainage, as well as reclamation of the accesses. R645-301-527.100 is not applicable to this minor coal exploration application.
- 5) R645-301-527.230, A maintenance plan describing how the roads will be maintained throughout their life to meet their design standards throughout their use. Page 3 of the application states the following, "As necessary, existing roads will be made travelable by hauling gravel to fill rough areas on bedrock ledges and grading rutted areas." Although this maintenance plan may seem adequate, it needs an additional commitment from the applicant to control fugitive dust on the access roads via roadway watering. This commitment is necessary to meet the requirement of minimizing adverse effects to fish, wildlife, and related environmental values (R645-301-358).
- 6) R645-301-527.240, A commitment that if a road is damaged by a catastrophic event, such as a flood or an earthquake, the road will be repaired as soon as practical after the damage has occurred. The Dugout Canyon Mine mining and reclamation plan contains this required commitment in Chapter 5, Engineering, page 5-45. Page 4 of the surface use agreement in place between Canyon Fuel Company and the Thayn Trust, paragraph (a) specifically states that CFC shall

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use and maintain the Thayn lands...although the minor coal exploration application does not contain this specific commitment; an adequate amount of commitment is in place to ensure that the intent of this regulation is met.

- 7) R645-301-534.100, Roads will be located, designed, constructed, reconstructed, used, maintained, and reclaimed, so as to...The minor coal exploration application has generally met all of these requirements. No new roads will be constructed; therefore, the location, design and construction requirements of this regulation are not applicable. The existing ranch and logging roads will be utilized to provide all access to the exploration sites. Use and maintenance commitments are in place for the existing roads to meet the previously mentioned requirements. None of the roads, nor any improvements made to the existing roads will be reclaimed, as confirmed in the minor coal exploration application, and the in place surface use agreement.
- 8) R645-301-534.200, "To ensure environmental protection and safety appropriate for their planned duration and use, including consideration of the type and size of equipment used, the design and reconstruction of roads will incorporate appropriate limits for grade, width, surface materials, and any necessary design criteria established by the Division." As previously noted, all access roads to the exploration sites are in place as ranch and logging roads. No new roads will be constructed. The established roads have held up under large trucks for years. If grades or traction conditions have been poor in the past, heavy machinery access is provided by pulling the equipment to its location with large dozers. The terrain in the exploration area is rugged, and varies in elevation "from 7,200 feet in the south along the base of the Bookcliffs to 8,700 feet in the north atop the high mesas", (See page 3 of the application). Thus, the requirements of 534.200 are in reality, not applicable to this submittal.
- 9) R645-301-R645-301-534.300, Primary Roads. This regulation is not applicable to this submittal.
- 10) R645-301-542.600, Reclamation of Roads not considered as part of the approved post Mining land use. This regulation is not applicable to this minor coal exploration application. All roads that will provide access to the three proposed exploration drill sites will be retained, per the stipulation contained in the established surface use agreement between Canyon Fuel Company and the heirs of the Milton and Ardith Thayn Trust.
- 11) R645-301-742.410 et al. through 742.420 et al, Drainage and Sediment Control. The application does not contain any description of methods which may need implementation to control drainage or prevent to the extent possible additional



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contributions of suspended solids to stream flow. Although Map 2 contained in the submittal shows the unimproved roads in the exploration area, there is no route specified by which the exploration equipment will access the sites. The Pace Canyon road parallels the Creek; thus, the applicant must describe any methods of treatment that need to be implemented to prevent water pollution from traffic involved with the coal exploration activities.

### Findings:

The application is deficient and must address the following:

**R645-301-358**, the applicant must determine the specific travel route which will be used to access the exploration sites, and specify what improvements will be necessary to those specific roads to minimize adverse impacts on fish, wildlife, and related environmental values.

**R645-301-526.200**, the applicant must include a utility installation description which states that all coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction or disruption of services provided by oil, gas, water wells, oil, gas or coal slurry pipelines, railroads, electric, and telephone lines, or water or sewage lines. If none of these utilities are pertinent to the exploration area, the application must so state that information.

**R645-301-527.230**, the applicant's road maintenance plan needs a commitment to water roadways when necessary to minimize adverse effects to fish, wildlife, and related environmental values (R645-301-358).

**R645-301-742.410 et al. through 742.420 et al**, the application must specify what methods of treatment along the specific access routes will be implemented to prevent water pollution from the coal exploration activities.

## RECLAMATION STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-200.

### Analysis:

#### Approximate original contour

R645-202-241, there is no discussion or commitment within the minor coal exploration application relative to the return of the three exploration sites to their approximate original contour. This is a deficiency that must be addressed.

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**Boreholes**

R645-202-243, Reclamation of Exploration Holes. Page 5, paragraph four of the minor coal exploration application specifically addresses the plugging of each of the exploration boreholes, (See R645-301-529, 301-551, 301-631, 301-765). R645-301-738 requires temporary capping of boreholes relative to ground water monitoring in surface coal mining operations, which renders it not applicable to this minor coal exploration application.

**Facilities and Equipment**

R645-202-244, Prompt Removal of Facilities and Equipment. Although page 5 of the minor coal exploration application generally addresses the reclamation of the exploration sites, there is no mention of the permittee's intent to meet the requirements of R645-202-244. This is a deficiency that must be addressed.

**Reclamation Bond Amount**

**R645-201-225;** Determination of Reclamation bond Amount. There is no information provided relative to the amount of reclamation bond that is necessary to reclaim the three proposed exploration boreholes. This is a deficiency that must be addressed.

**Findings:**

The application is deficient; the following must be addressed prior to receiving a recommendation for approval:

**R645-202-241,** the application must address how the sites will be returned to approximate original contour.

**R645-202-244,** the application must contain a commitment to promptly remove all facilities and equipment upon completion of the exploration activities.

**R645-201-225,** the application must contain reclamation cost estimates for all phases of reclamation for the boreholes. If an additional bond amount is necessary, as determined by review of the in-place bond for the Dugout Canyon Mine that must be so stated and provided.

**PUBLIC AVAILABILITY OF INFORMATION**

**Analysis:**

Ark Land Company submitted five copies of the notice of intent to conduct coal exploration activities to the Division of Oil, Gas, and Mining on February 12, 2004. One copy of the submittal was forwarded to the Division's Public Information Center in the Department of Natural Resources headquarters in Salt Lake City, Utah, where it is available for public review. This meets the minimum regulatory requirements of R645-203-100.

**R645-203-200. Confidentiality.**

Ark Land Company has requested, on page 6 of the minor coal exploration application, that any drilling information that is determined as a result of the completion of the coal exploration activities **NOT be made available for public inspection** relative to coal seam thickness or quality. The information is crucial to Ark Land's competitive rights. This is a right, which is granted the applicant through R645-203-210. The written request contained within the submittal is adequate to meet the requirements of that regulation.

**Findings:**

The minimum regulatory requirements of this section have been met.